

- Experience:** **University of California, Los Angeles (UCLA)**, July 2009 to present.
Hedrick assistant professor.
- Mathematical Sciences Research Institute (MSRI)**, January 2010 to May 2010.
Research member.
- National Research Council (NRC)**, June 2005 to September 2005.
Guest researcher.
- University of British Columbia (UBC)**, September 2002 to June 2005.
Research assistant.
- Education:** **PhD mathematics (2009), Université du Québec à Montréal (UQÀM)**.
Thesis supervisors: Steven Boyer and André Joyal.
- MSc mathematics (2004), University of British Columbia (UBC)**.
Thesis supervisor: Dale Rolfsen.
- BSc honours mathematics (2002), University of British Columbia (UBC)**.
- Education Abroad Program (1999), University of East Anglia (UEA)**.
- Teaching:** **Instructor:** Multivariable Calculus (UQÀM), Ordinary Differential Equations (UBC), Integral Calculus (UBC), Differential Calculus (UBC).
- Coordinator:** UBC math workshop program, a pilot program designed to develop problem solving skills among first year calculus students.
- Awards:** **NSERC Postdoctoral Fellowship**, 2009-2011.
- FQRNT Postdoctoral Research Fellowship (declined)**, 2009-2011.
- NSERC Canada Graduate Scholarship**, 2006-2009.
- Institute des Sciences Mathématiques Fellowship**, 2005.
- UBC Graduate Teaching Award**, 2004.
- NSERC Undergraduate Summer Research Award**, 1999, 2000, 2001.
- Hugh M. Brock Education Abroad Scholarship**, 1999.
- Works:** **Involutions on 3-manifolds and Khovanov homology**, UQÀM PhD thesis, 2009 (1-200).
- A remark on Khovanov homology and two-fold branched covers**, preprint (5 pages), arXiv:0808.2797.
- Surgery obstructions from Khovanov homology**, preprint (54 pages), arXiv:0807.1341.
- Does Khovanov homology detect the unknot?** (with M. Hedden), submitted (7 pages), arXiv:0805.4423.
- Knots with identical Khovanov homology**, Journal of Algebraic and Geometric Topology, Vol. 7, 2007 (1389–1407).
- Simplification of scalar data via monotone-light factorizations** (with M. Brooks), Proceedings of the 19th Canadian Conference on Computational Geometry, 2007 (109–112).
- Simplification of sampled scalar fields by removal of extrema** (with M. Brooks), NRC Technical report, 2007 (1–28).
- Any tangle extends to non-mutant knots with the same Jones polynomial**, Journal of Knot Theory and its Ramifications, Vol. 15 No. 9, 2006 (1153–1162).
- Knots, Tangles and Braid Actions**, UBC MSc thesis, 2004 (1–74).
- A computer implementation of Artin combing**, computational software, 2001.
- Talks:** **Georgia Topology Conference (Athens, USA)**, May 2009.
Title: Surgery obstructions from Khovanov homology.
- Banff International Research Station (Banff, Canada)**, March 2009.
Title: Homological width and Dehn surgery.

AMS Special Session on Categorification (Washington DC, USA), January 2009.

Title: Involutions on 3-manifolds and Khovanov homology.

Second Canada-France Congress (Montréal, Canada), June 2008.

Title: Surgery obstructions from Khovanov homology.

Knots in Washington XXVI (Washington DC, USA), April 2008.

Title: Khovanov homology and lens space surgeries.

Banff International Research Station (Banff, Canada), April 2007.

Title: Knots with identical Khovanov homology.

Canadian Mathematical Society, winter meeting (Victoria, Canada), December 2005.

Title: Surgery on tangles and the Jones polynomial.

Banff International Research Station (Banff, Canada), October 2004.

Title: Braid group actions and the Jones polynomial.

Centre for Teaching and Academic Growth (Vancouver, Canada), September 2004.

Title: Facilitative peer-led problem-based learning.

**Invited
Seminars:**

UCLA topology seminar, December 2008.

Claremont Colleges topology seminar, December 2008.

Columbia University symplectic geometry and gauge theory seminar, November 2008.

McMaster University geometry and topology seminar, October 2008.

Institute de Mathématiques de Toulouse topology seminar, September 2008.

Université Aix-Marseille topology seminar, September 2008.

CIRGET geometry and topology seminar, 2007, 2008.

Columbia University geometric topology seminar, October 2007.

University of British Columbia algebra and topology seminar, 2003, 2004, 2006, 2007, 2009.

Institute de Mathématiques de Bourgogne topology seminar, June 2005.

**Selected
Conferences:**

Banff International Research Station (Banff, Canada), March 2009.

Participant in the workshop “Interactions of Geometry and Topology in dimensions 3 and 4.”

Stanford University, (Stanford, USA), August 2008.

Participant at “Holomorphic Curves.”

Mathematical Sciences Research Institute (Berkeley, USA), August 2008.

Participant in the workshop “Low Dimensional Topology.”

Banff International Research Station (Banff, Canada), April 2007.

Participant in the workshop “The Many Strands of the Braid Groups.”

CIRGET (Montréal, Canada), October 2005.

Participant in the workshop “Around Khovanov Homology.”

Centre International de Rencontres Mathématiques (Luminy, France), June 2005.

Participant in the workshop “Braids, Quantum Invariants and Geometry of 3-Manifolds.”

Columbia University (New York, USA), March 2005.

Participant at “Braids Links and Mapping Class Groups.”

Banff International Research Station (Banff, Canada), October 2004.

Participant in the workshop “Braid Groups and Applications.”

Banff International Research Station (Banff, Canada), May 2004.

Participant in the workshop “Knots and Their Manifold Stories.”

**Summer
Schools:**

Park City Mathematics Institute (Park City, USA), July 2006.

Participant in the graduate summer program “Low Dimensional Topology.”

Université Aix-Marseille (Marseille, France), May 2006.

Participant in the program “Knots, Groups and 3-Manifolds.”

MSRI/PIMS (Vancouver, Canada), July 2004.

Participant in the workshop “Knots in Vancouver.”

Mathematical Sciences Research Institute (Portland, USA), July 2003.

Participant in the program “Mathematical Graphics.”

Centre de Recherches Mathématiques (Montréal, Canada), July 2001.

Participant in the program “Low Dimensional Topology and Group Theory.”

Service:

Refereed for the journal *Mathematical Research Letters*.

Organizer for the CIRGET student seminar, 2007-2009.

Organizer for the CIRGET low-dimensional topology working group, 2008-2009.

Organizer for the Colloque Panquébécois, 2008.

Organizer for the ISM Student seminar, 2006-2007.

Program committee, UQÀM mathematics department.

Selection committee, 2005 UBC graduate teaching awards.

Undergraduate and graduate level talks: SFU student conference, Colloque Panquébécois, ISM sur la route, CIRGET student seminar, ISM student seminar, UBC math club.

Invited panel member, seminar “Building a productive relationship with teaching assistants.”

Invited panel member, UBC Science Supper Series.

Volunteer facilitator, UBC grade school workshop program.